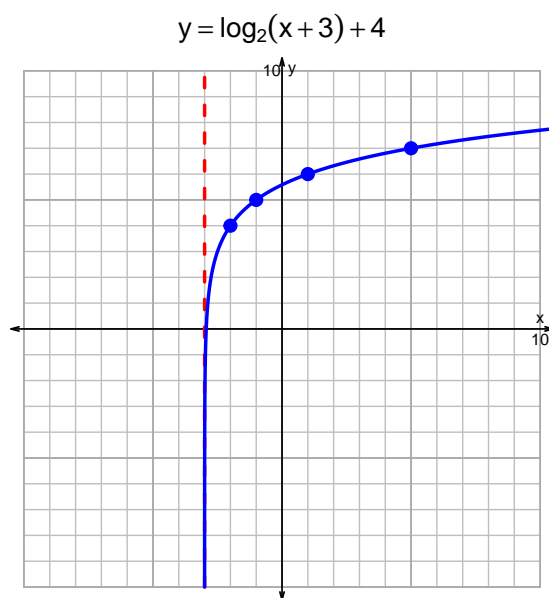
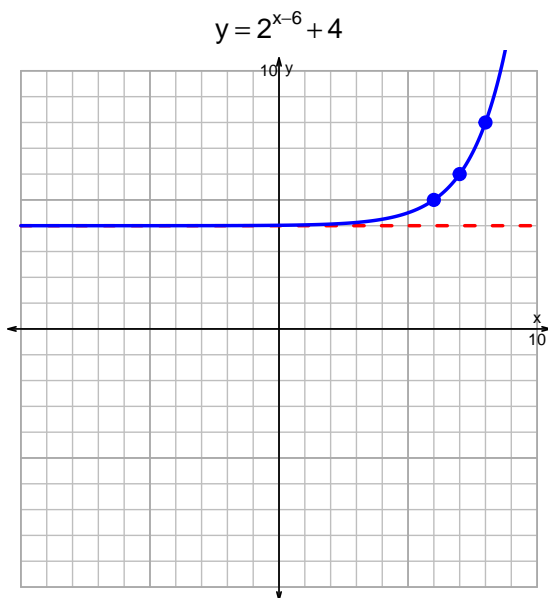


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v143)

1. Graph $y = 2^{x-6} + 4$ and $y = \log_2(x+3) + 4$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$19 = \left(\frac{5}{4}\right) \cdot 2^{7t/3}$$

Divide both sides by $\frac{5}{4}$.

$$\frac{19 \cdot 4}{5} = 2^{7t/3}$$

Take log, base 2, of both sides.

$$\log_2 \left(\frac{19 \cdot 4}{5} \right) = \frac{7t}{3}$$

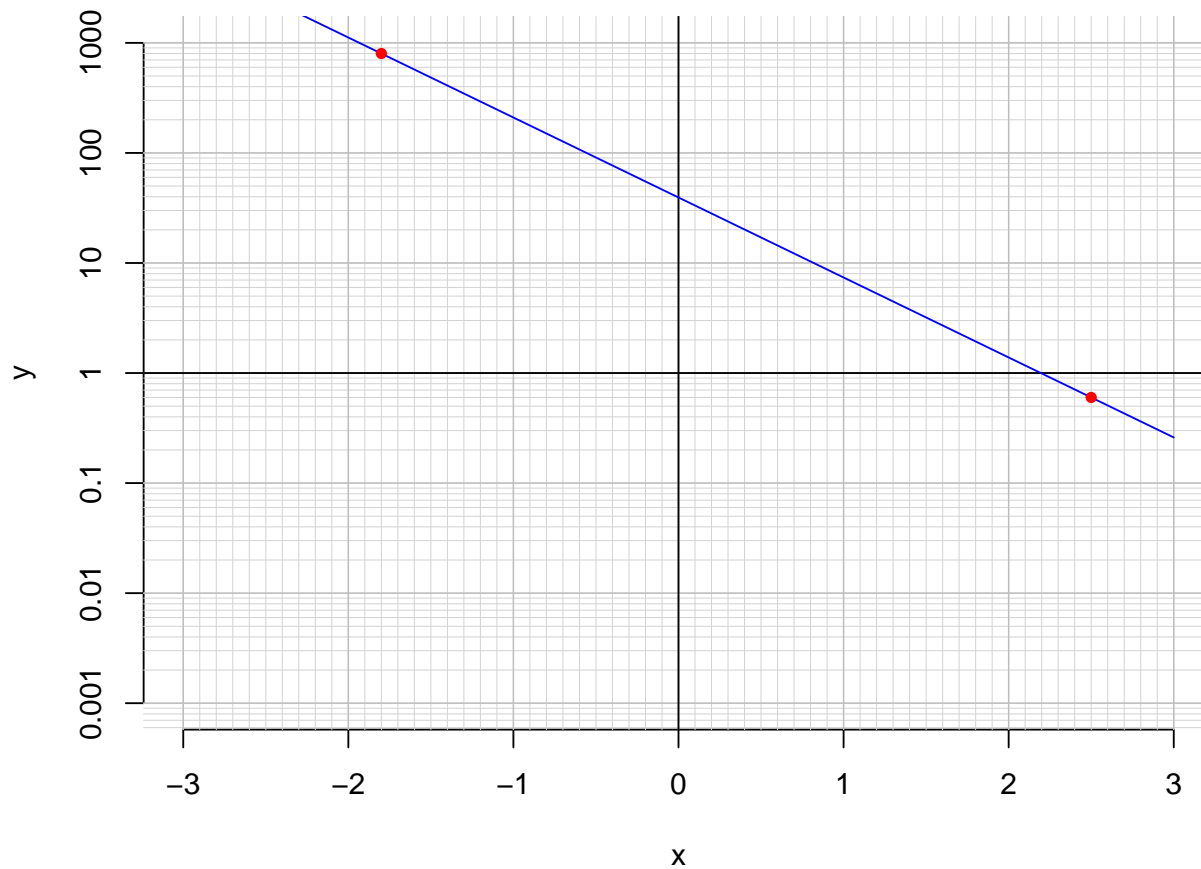
Divide both sides by $\frac{7}{3}$.

$$\frac{3}{7} \cdot \log_2 \left(\frac{19 \cdot 4}{5} \right) = t$$

Switch sides.

$$t = \frac{3}{7} \cdot \log_2 \left(\frac{19 \cdot 4}{5} \right)$$

3. An exponential function $f(x) = 39.4 \cdot e^{-1.67x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(2.5)$.

$$f(2.5) = 0.6$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{1.67} \cdot \ln\left(\frac{x}{39.4}\right)$$

- c. Using the plot above, evaluate $f^{-1}(800)$.

$$f^{-1}(800) = -1.8$$